

Master in Artificial Intelligence



Algorithm Selection & Development XXII





Purpose

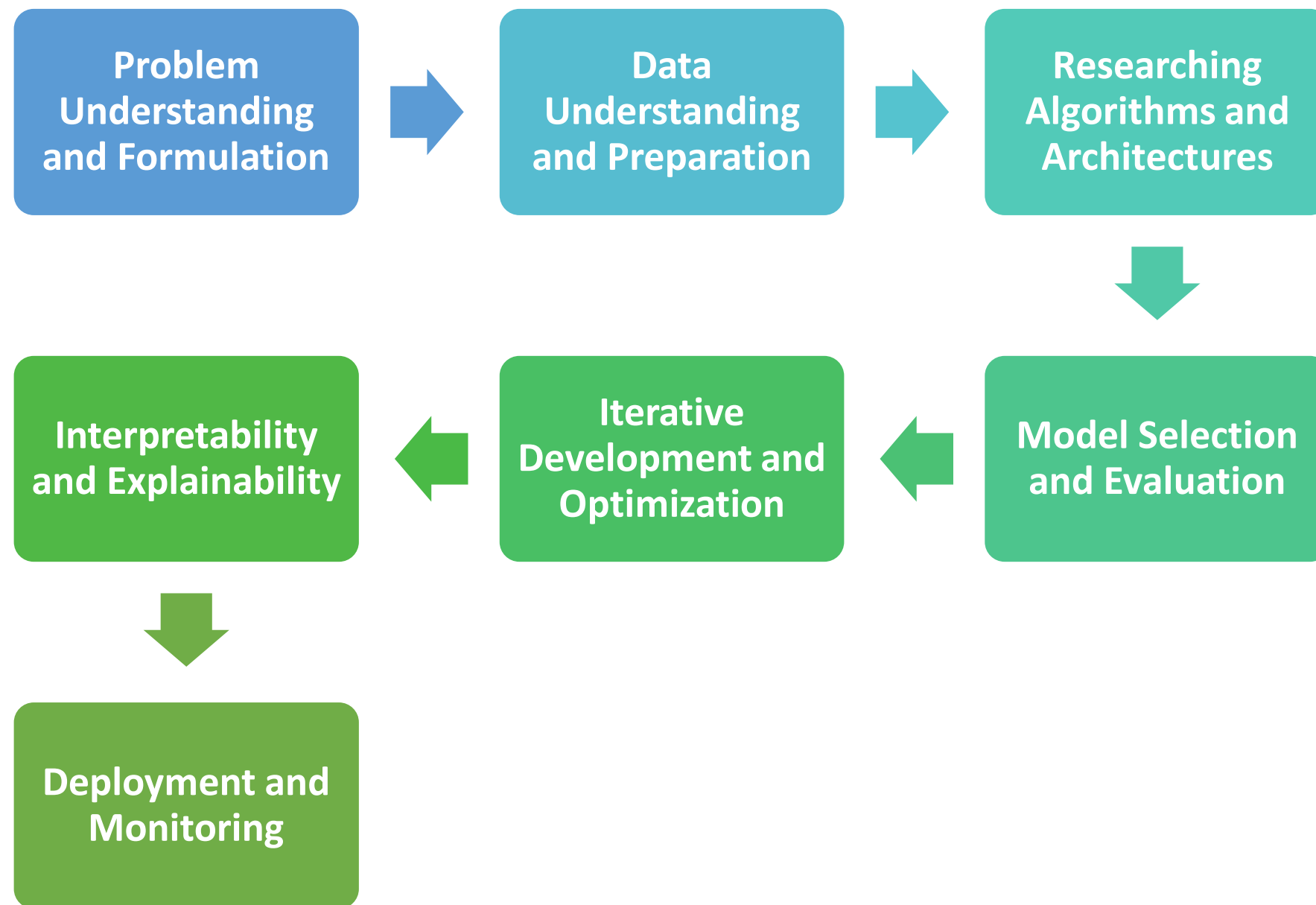
The purpose of the section is to help you learn how to research, select, and develop appropriate algorithms to become a Successful Artificial Intelligence (AI) Engineer

At the end of this lecture, you will learn the following

- **An example of researching, selecting, and developing appropriate machine learning algorithms or deep learning architectures based on the problem at hand and the available data**



How to research, select, and develop appropriate algorithms



SENTIMENT ANALYSIS



Problem Understanding

Louisa Sullivan
3 days ago
★★★★★
"Amazing coffee at the cozy café! The baristas were passionate about their craft, and the place was perfect to relax and enjoy a cup of Joe."

Terry Mendez
★★★★★
"I had a fantastic time at the museum. The interactive exhibits made learning fun, and the staff's passion for sharing information was evident. It's a perfect place for a family outing."

Bobby Henderson
3 days ago
★★★★★
"Great quality and value! The T-shirts I bought from this brand are soft, durable, and affordable. They are now my go-to basics for everyday wear."

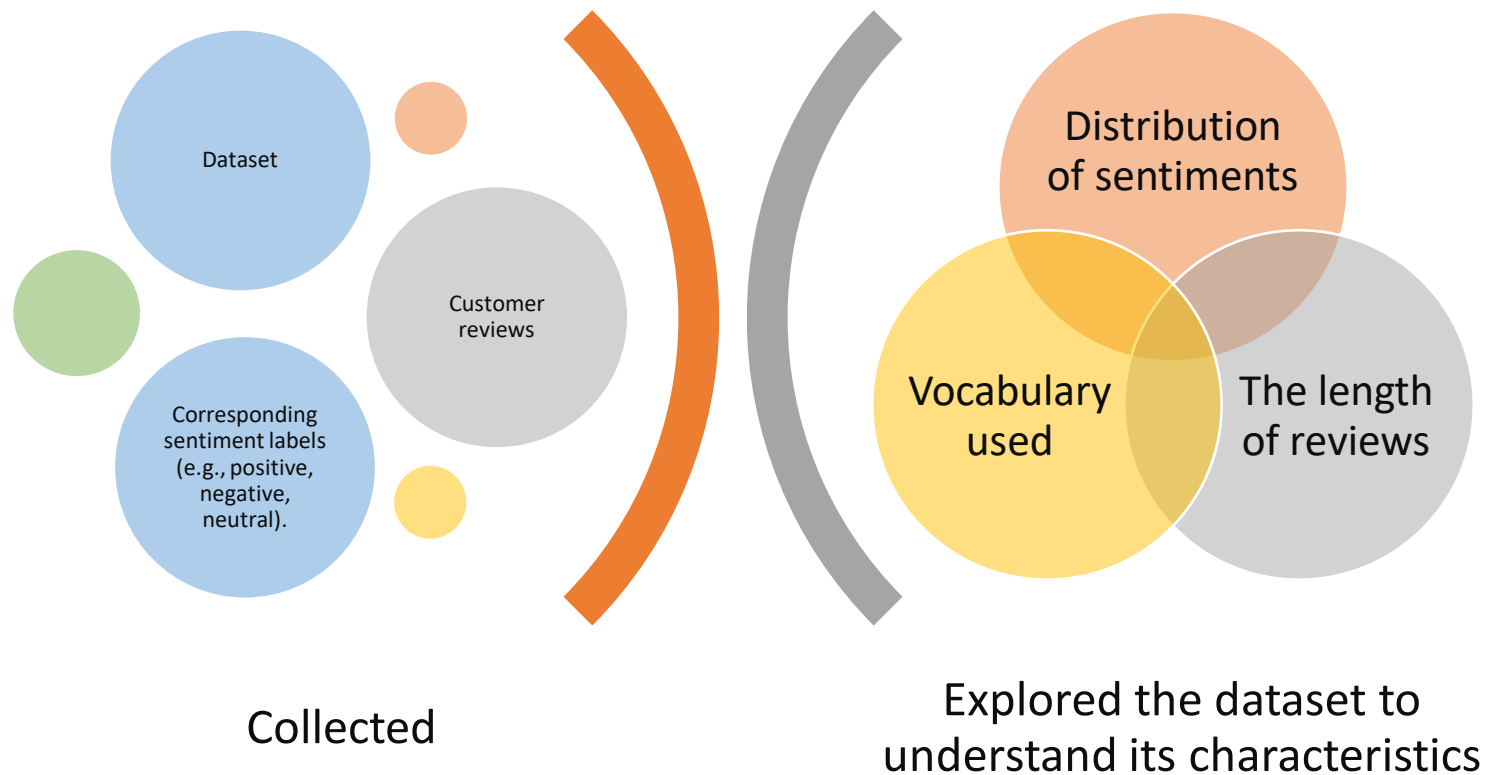
Jasmine Barnett
2 minutes ago
★★★★★
"Love these sunglasses! Stylish and provide excellent sun protection. A perfect accessory for any outfit."

Reviews
4.8 ★★★★★

NEGATIVE	NEUTRAL	POSITIVE
Totally dissatisfied with the service. Worst customer care ever.	Good Job but I will expect a lot more in future.	Brilliant effort guys! Loved Your Work.



Data Collection and Exploration



Literature Review

Identified

Relevant research papers, articles, and resources

On sentiment analysis, natural language processing (NLP), and machine learning techniques

For text classification tasks

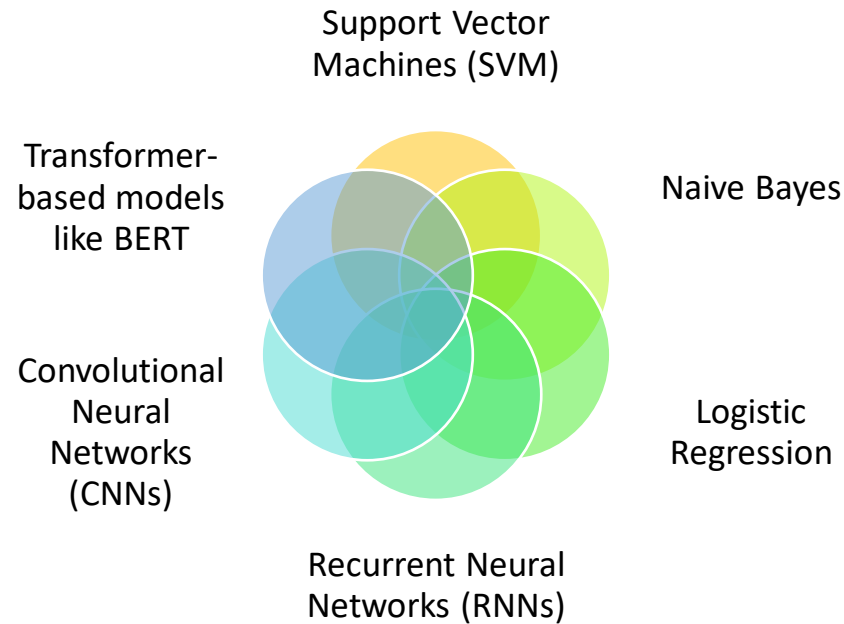
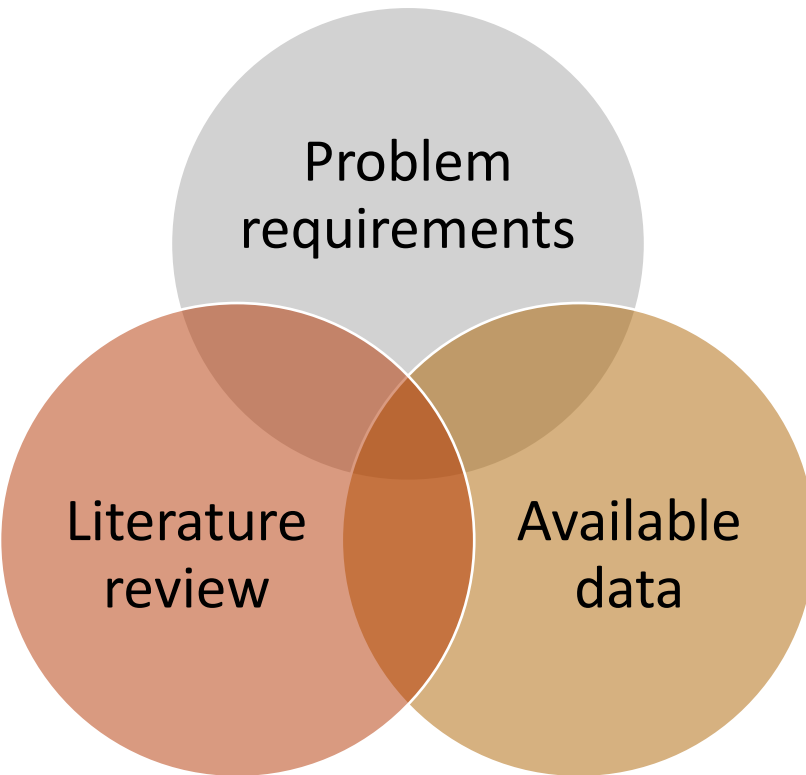
Learned about state-of-the-art

Algorithms, architectures, and methodologies

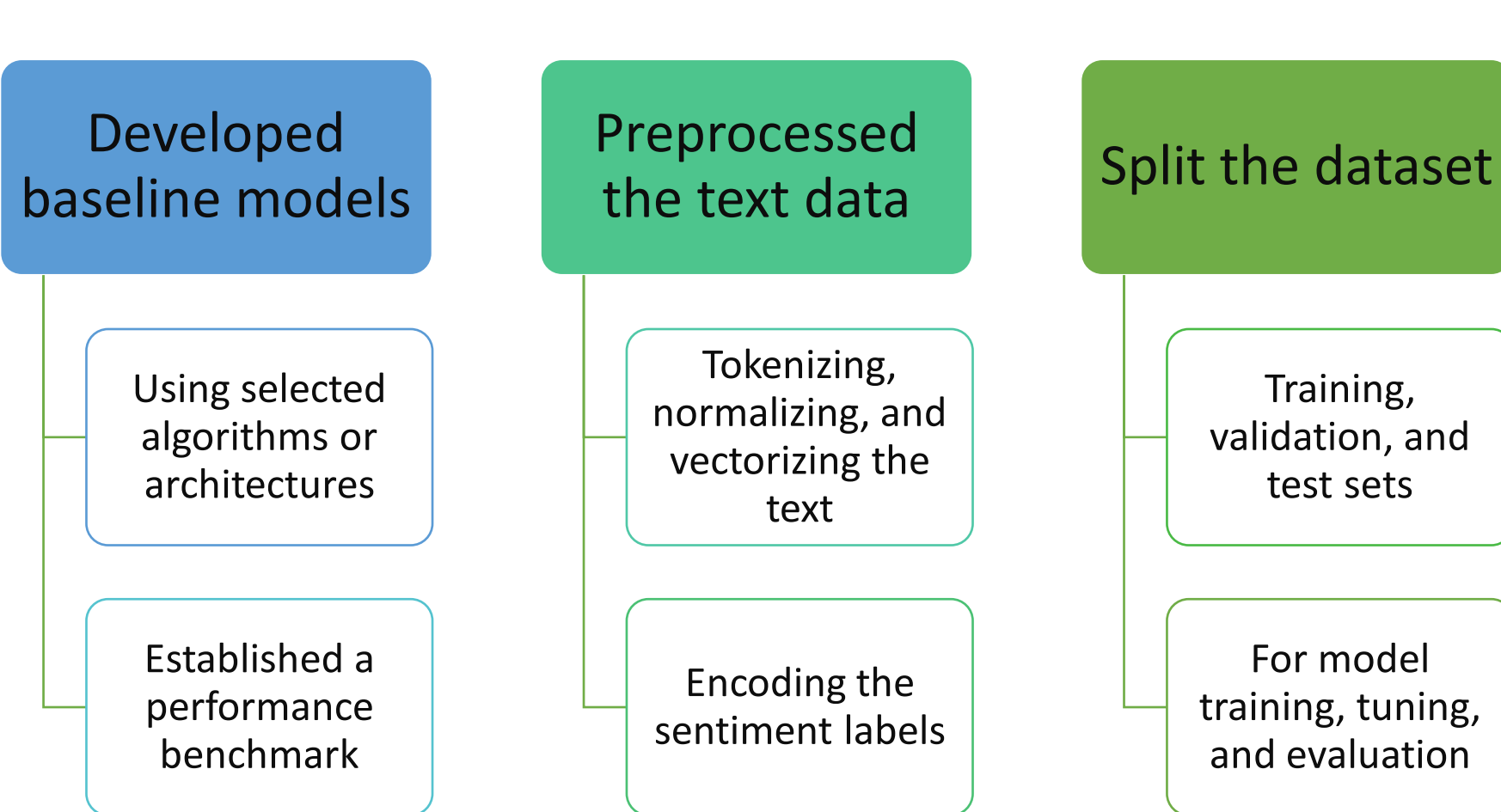
Used in sentiment analysis tasks



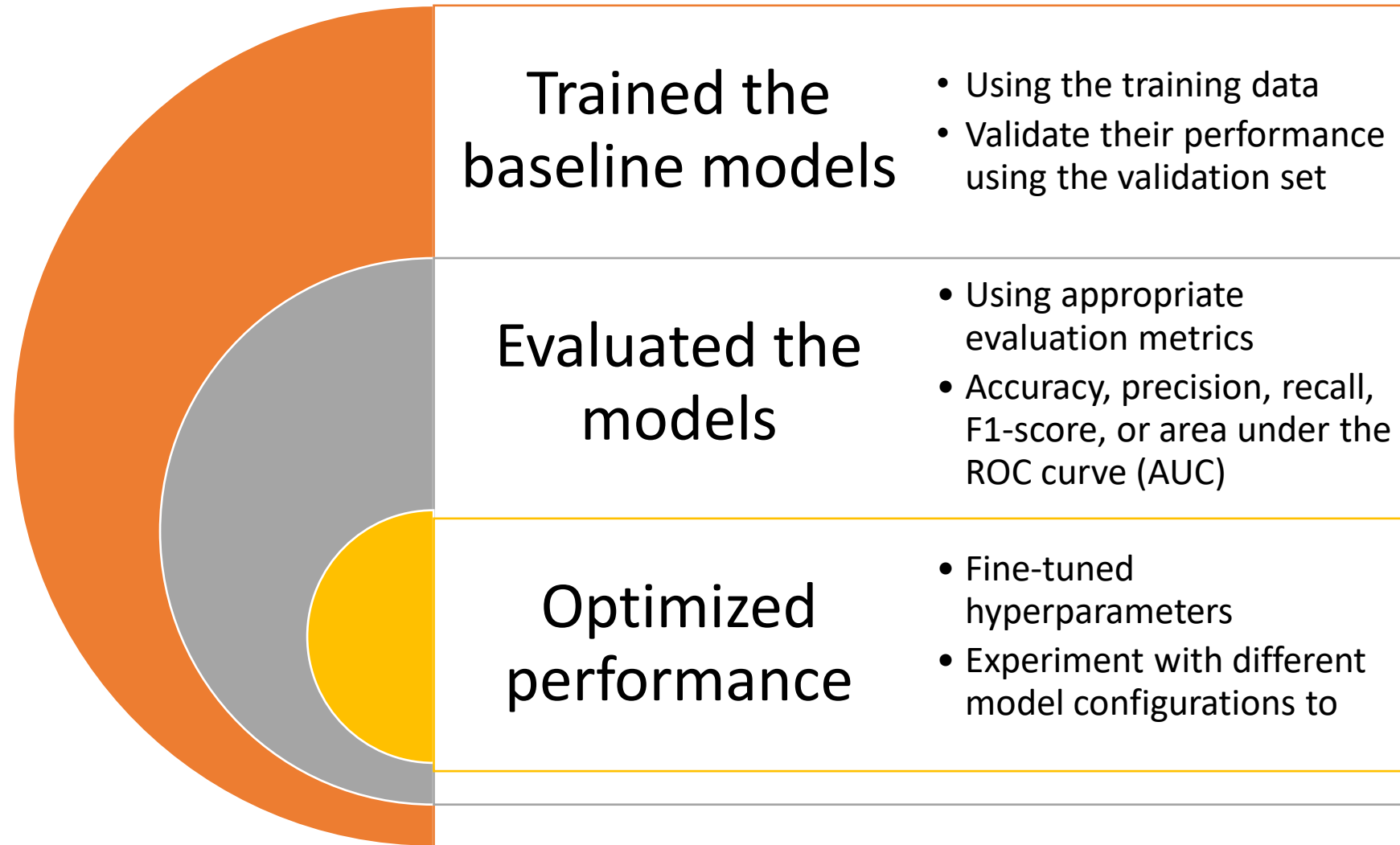
Algorithm Selection



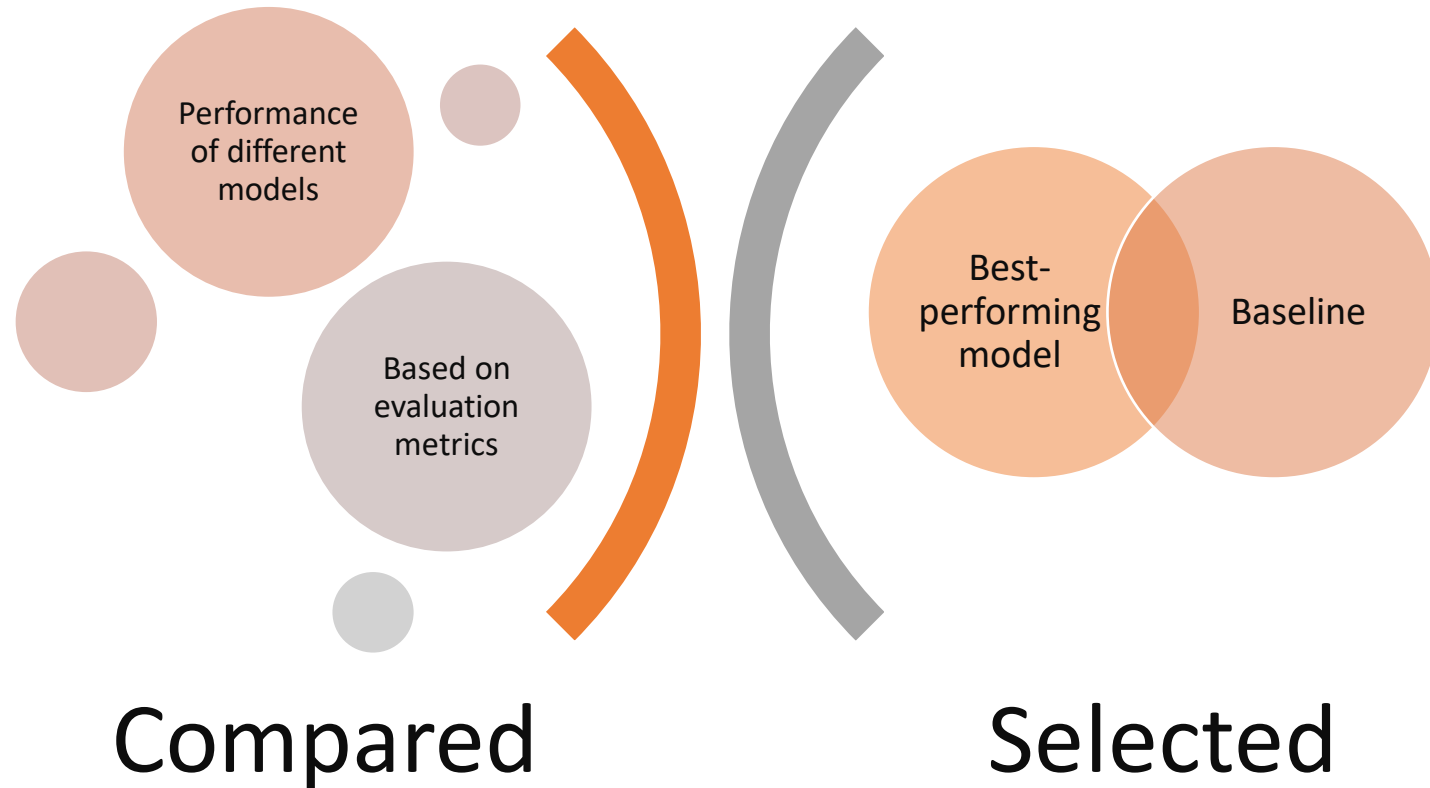
Model Development



Model Training and Evaluation



Performance Comparison



Model Refinement and Optimization

Experimented with advanced techniques

Fine-tuned the model architecture

Adjusted regularization parameters

Explored different optimization algorithms to improve performance

Transfer learning

Ensemble methods

Data augmentation

Hyperparameter tuning



Validation and Testing

Validated
the
refined
model

Using the
validation set

Ensured that it
generalizes well to
unseen data

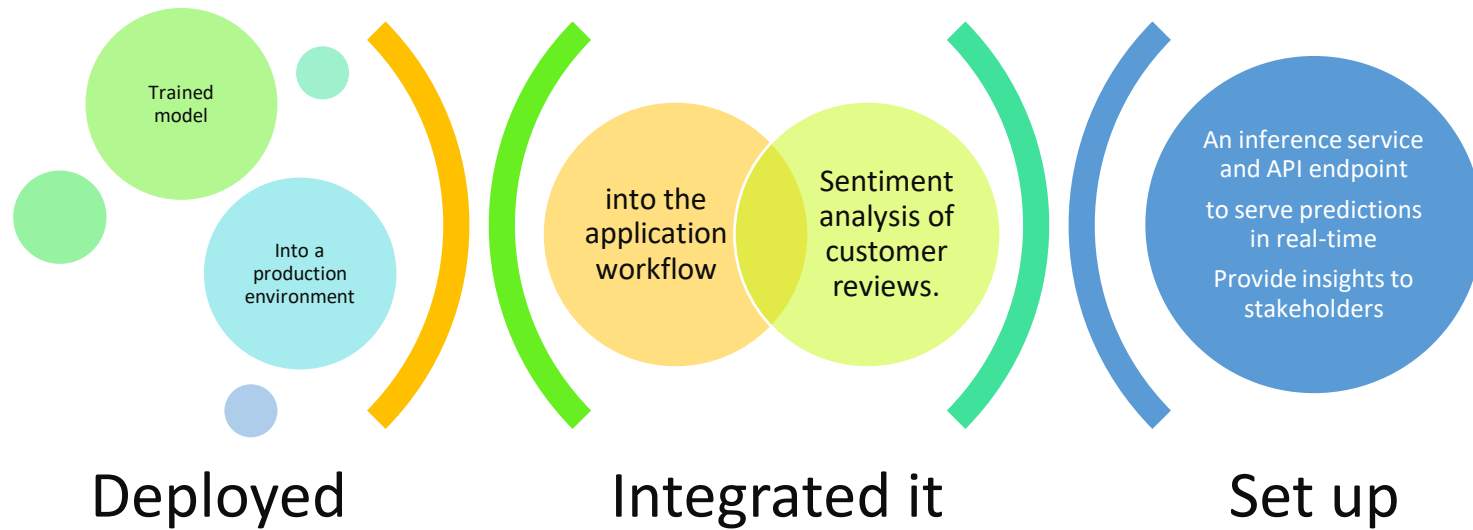
Tested the
final
model

On the test set

Obtained an
unbiased estimate
of its performance
on real-world data



Deployment and Integration



SENTIMENT ANALYSIS



NEGATIVE

Totally dissatisfied with the service. Worst customer care ever.



NEUTRAL

Good Job but I will expect a lot more in future.



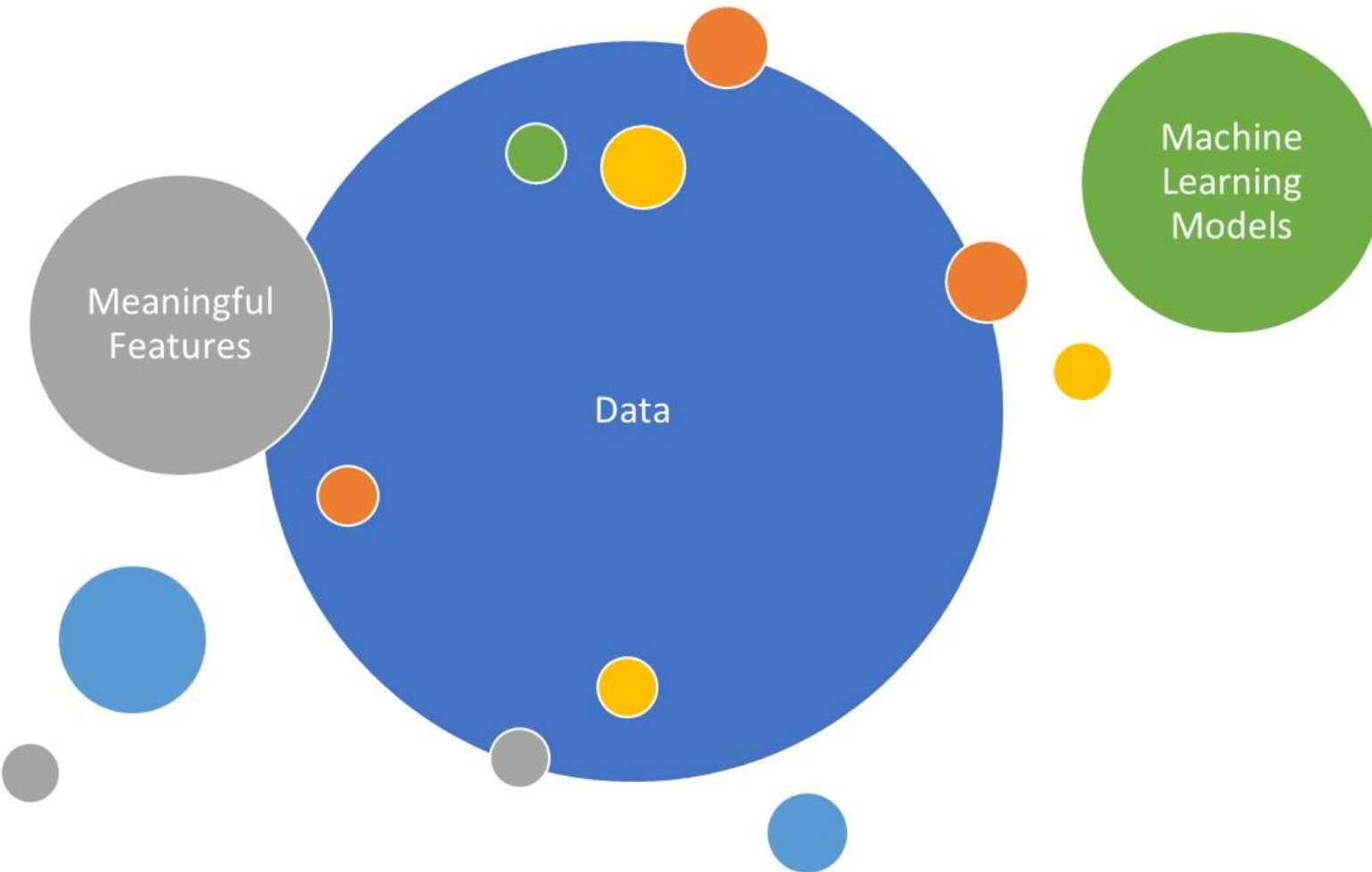
POSITIVE

Brilliant effort guys! Loved Your Work.



What is next?

Feature Engineering



Master in Artificial Intelligence

*Thank
you*



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